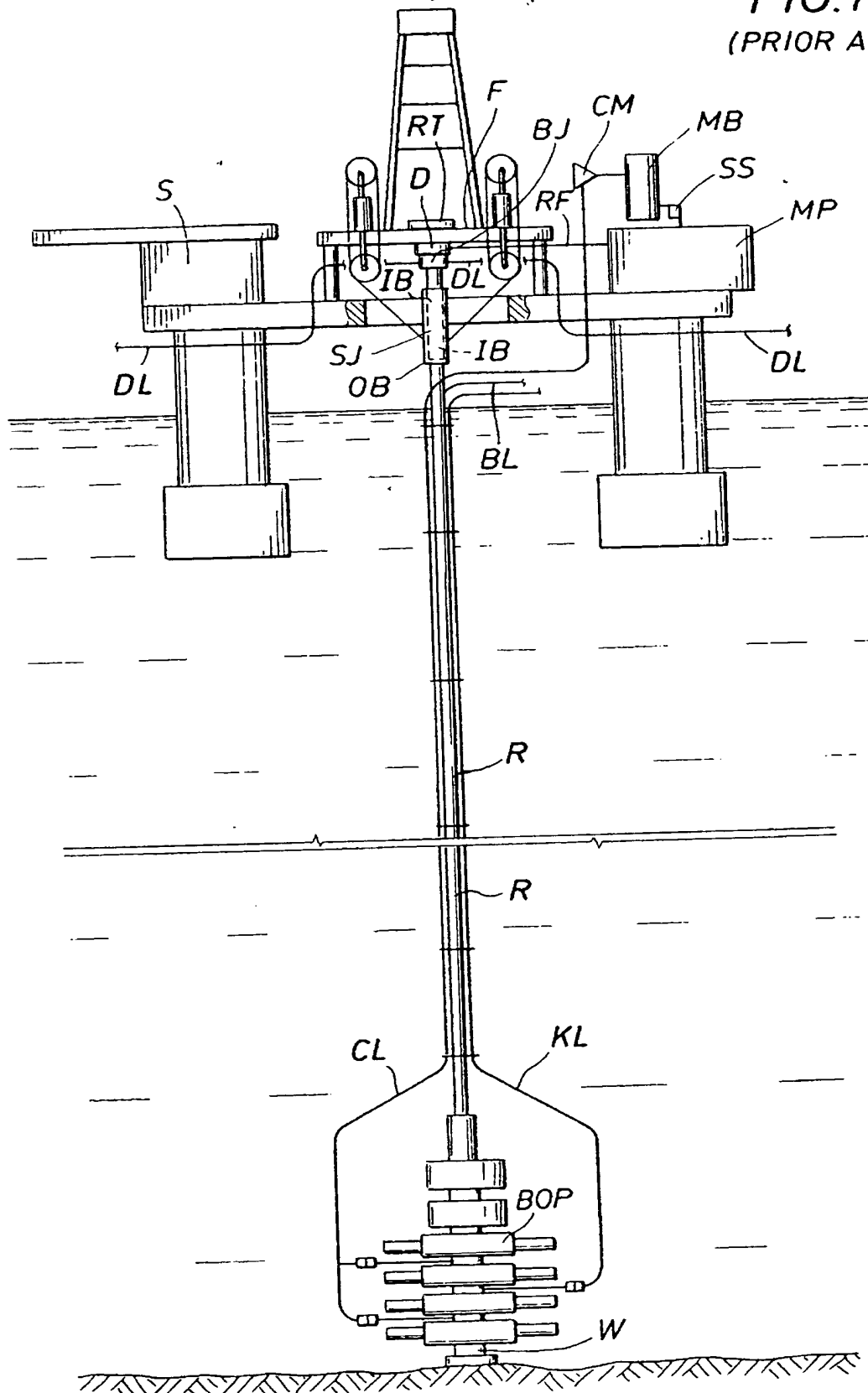


TITLE: METHOD FOR PRESSURIZED
MUD CAP AND REVERSE CIRCULATION
DRILLING FROM A FLOATING DRILLING RIG
USING A SEALED MARINE RISER
INVENTOR: Don M. Hannegan
SERIAL NO.: Unknown
ATTY DOCKET #: H055010.0048US0

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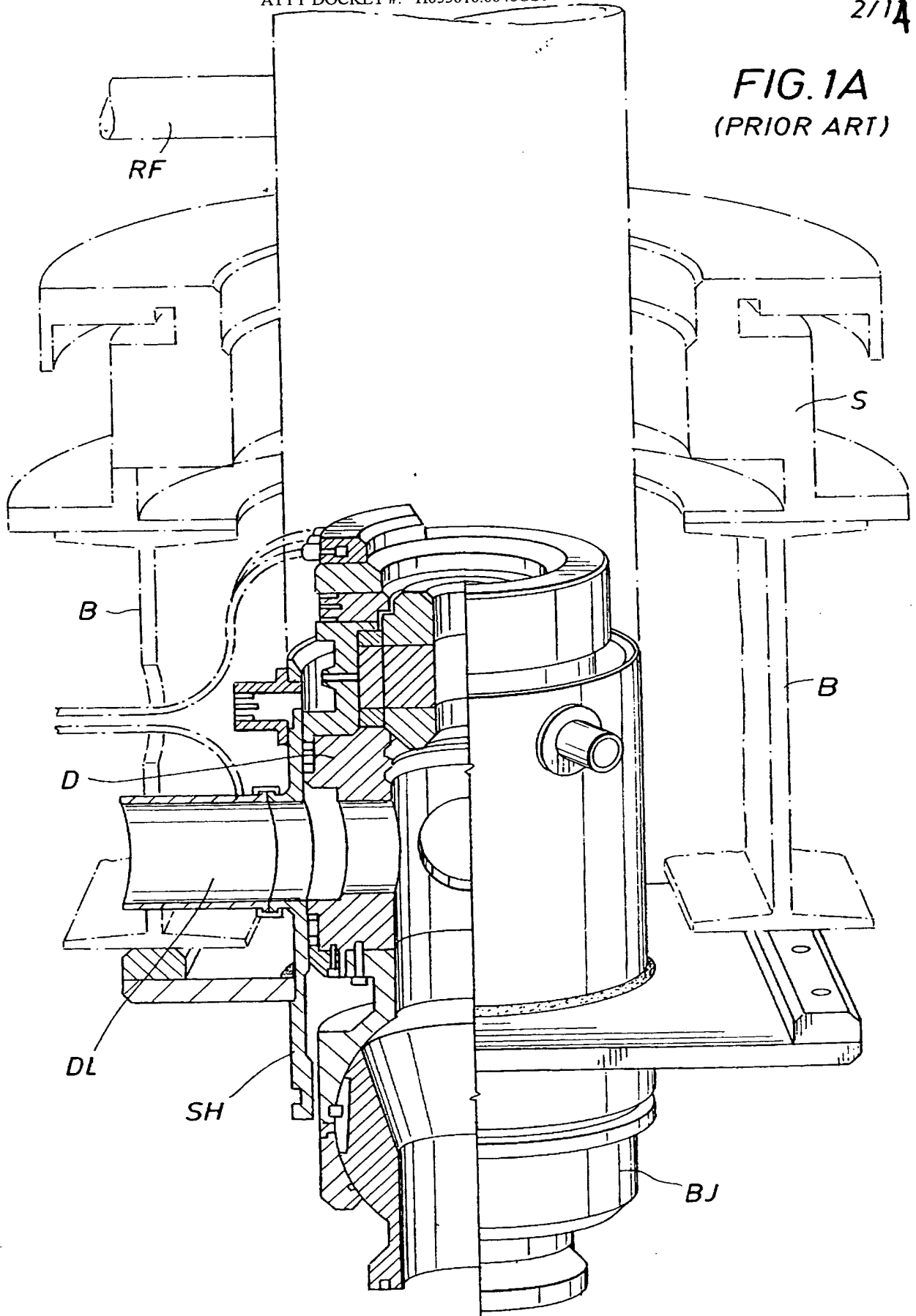
FIG. 1
(PRIOR ART)



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FIG. 1A
(PRIOR ART)



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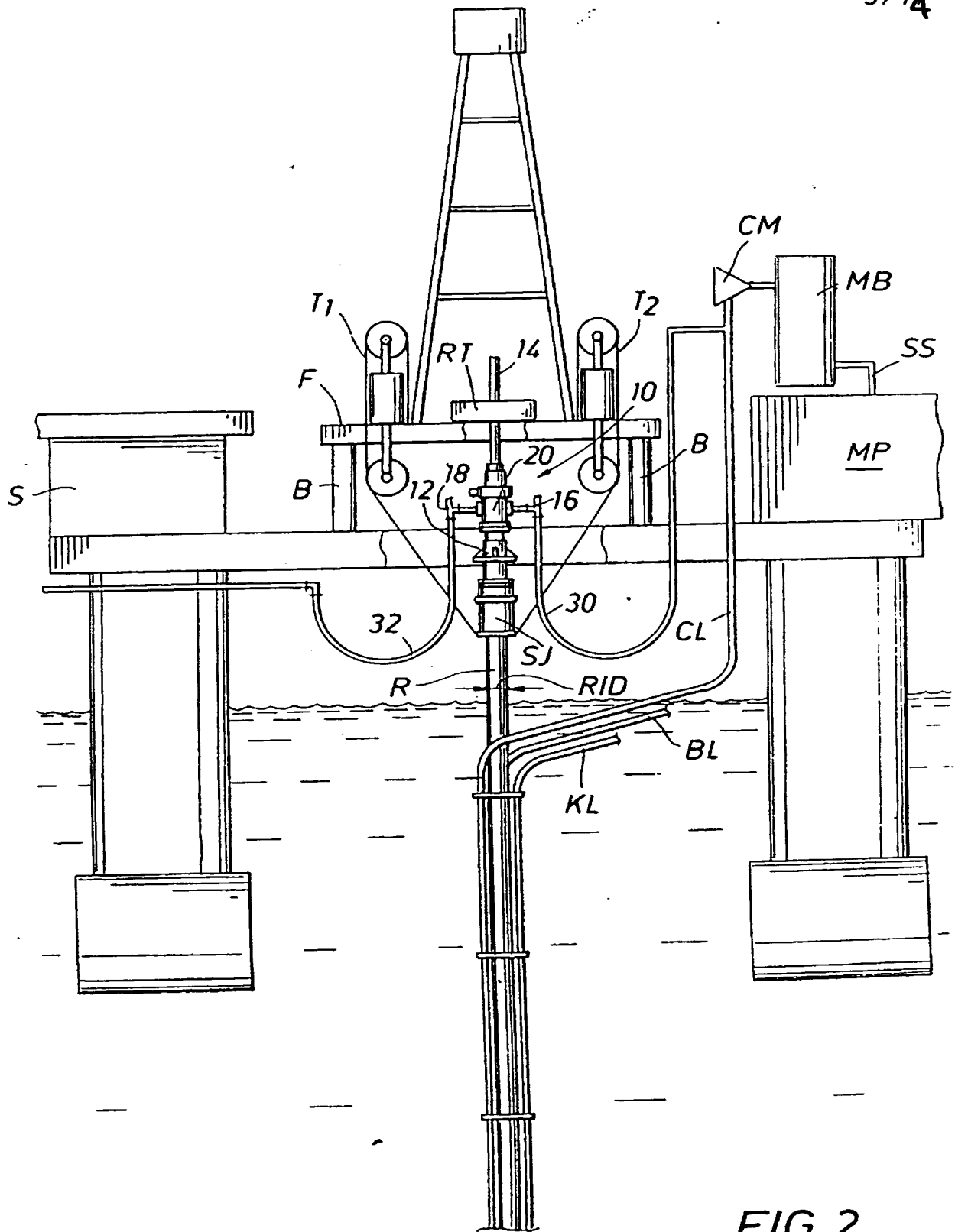
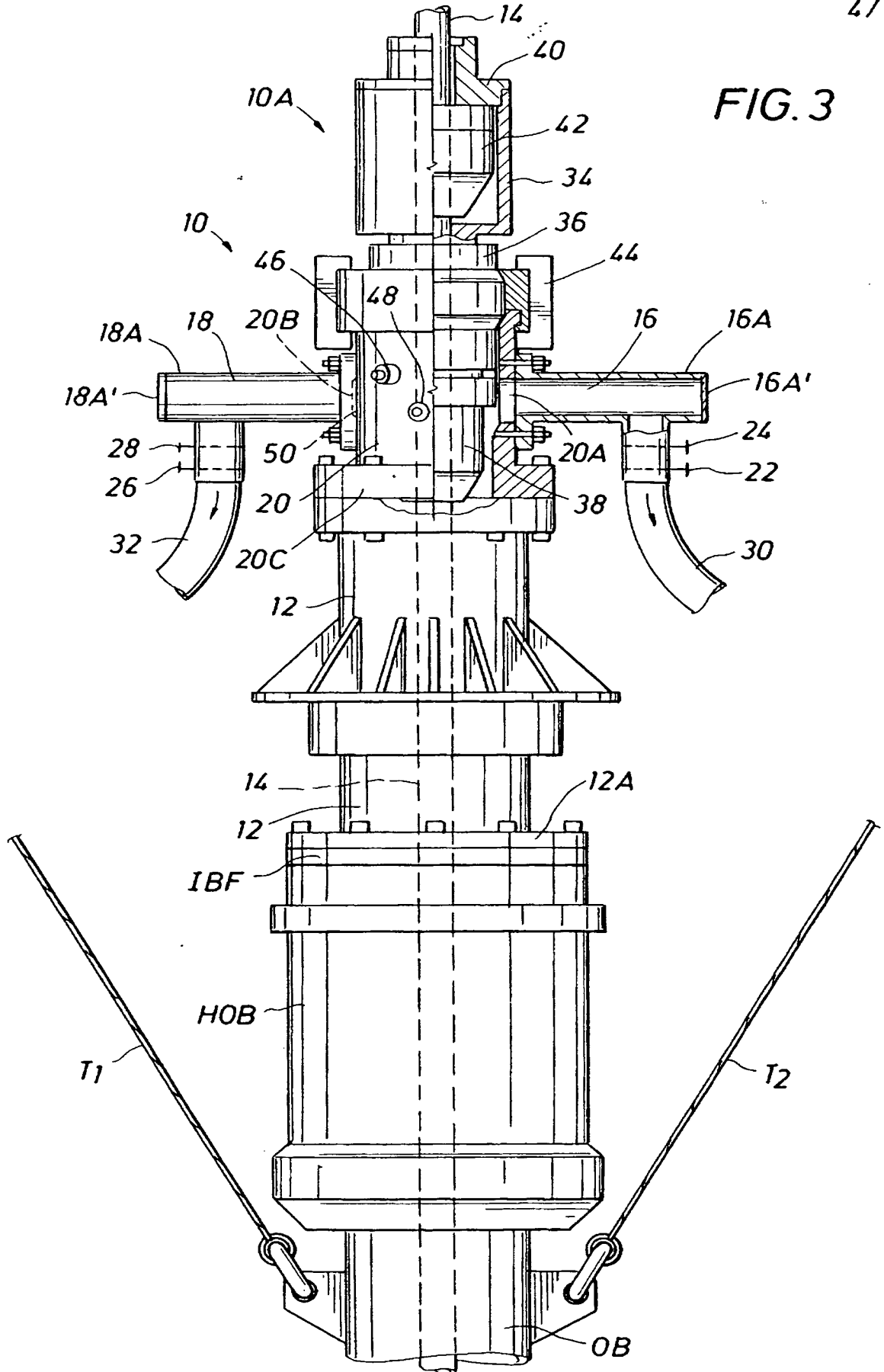


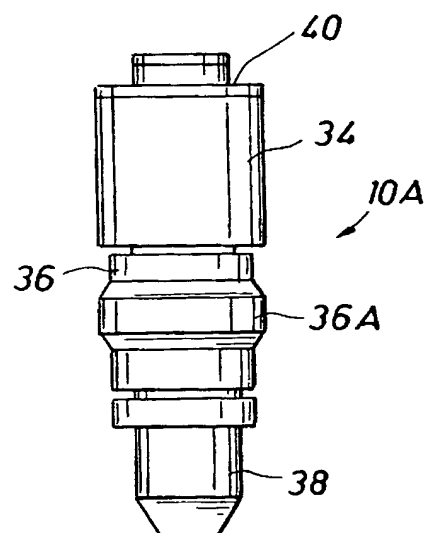
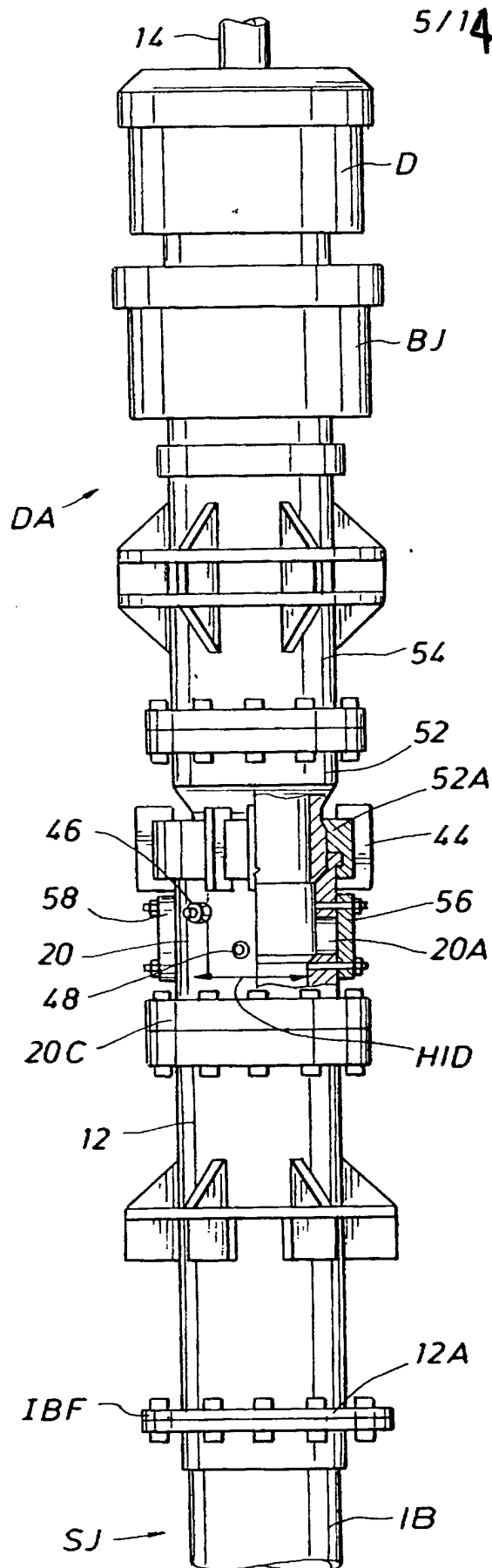
FIG. 2

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FIG. 3



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SERIAL NO.: Unknown
ATTY DOCKET #: H055010.0048US0



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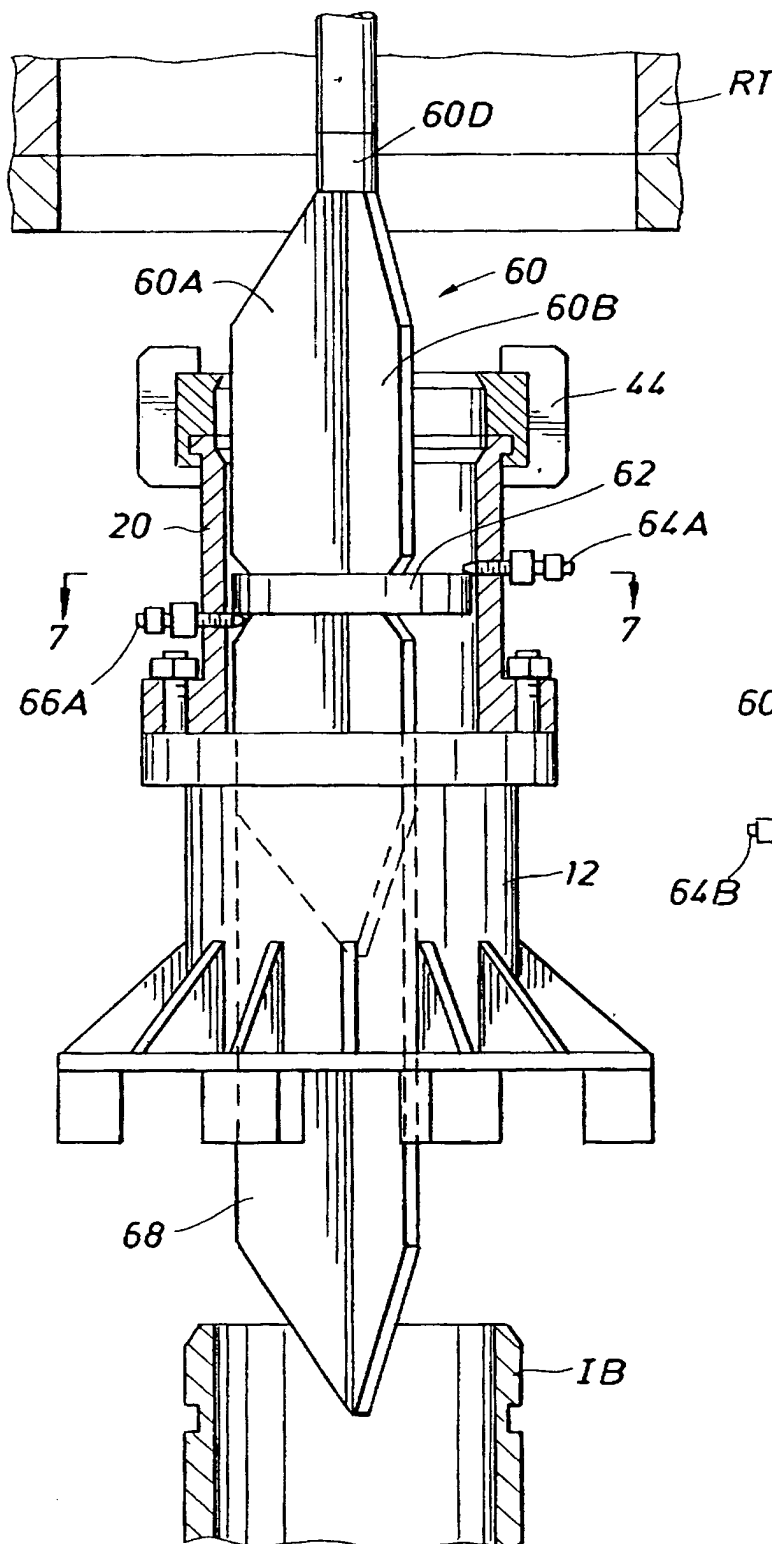


FIG. 6

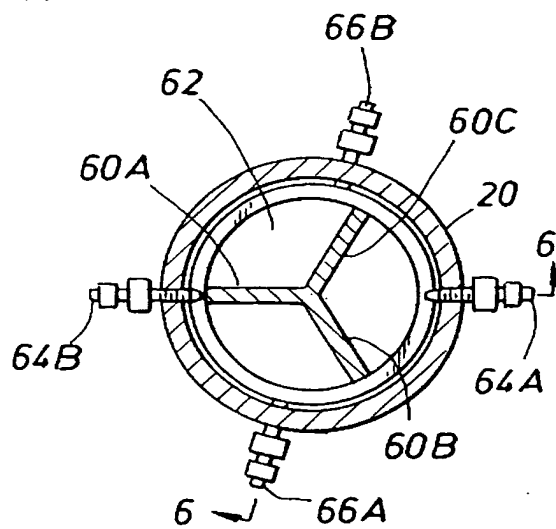


FIG. 7

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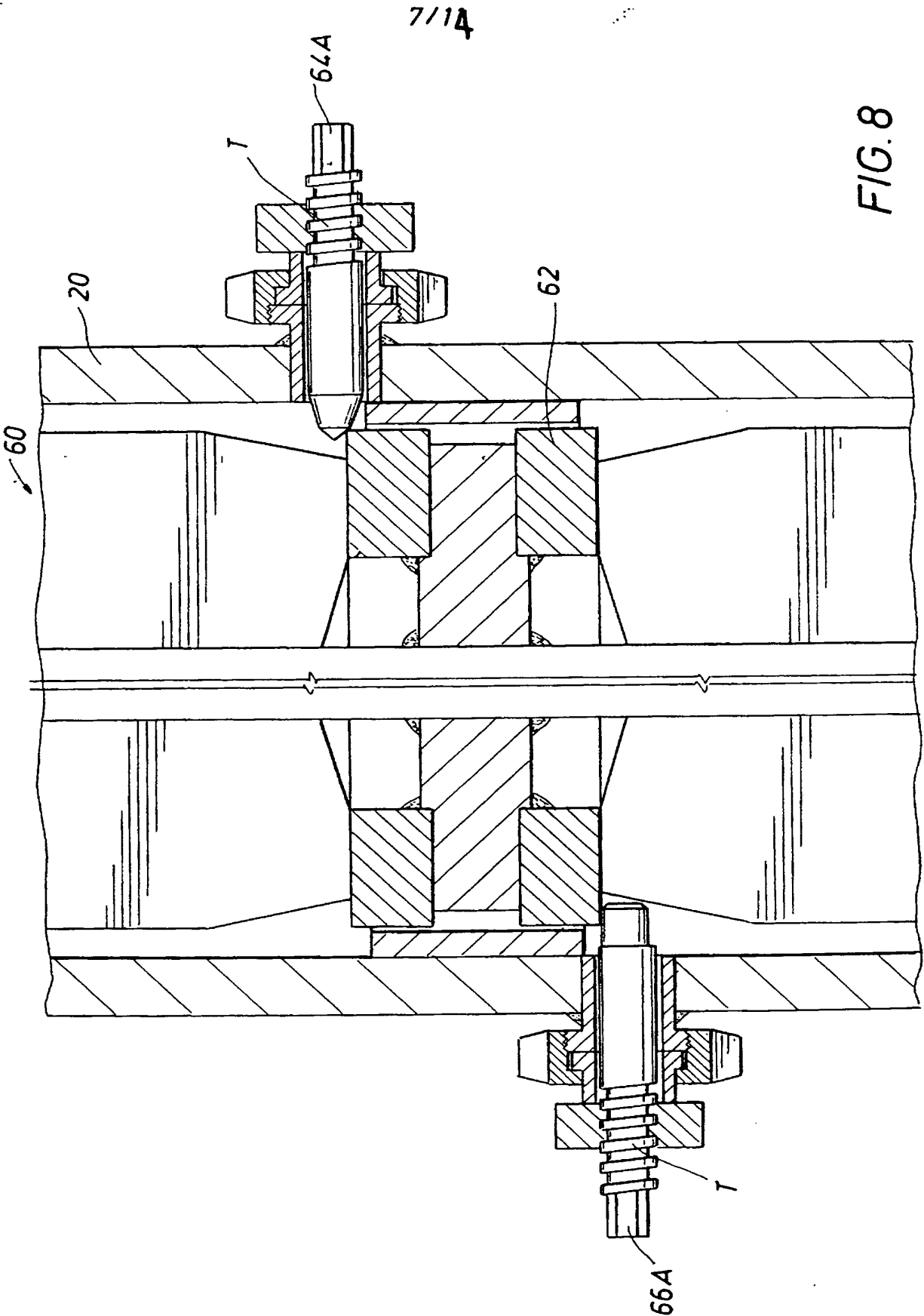


FIG. 8

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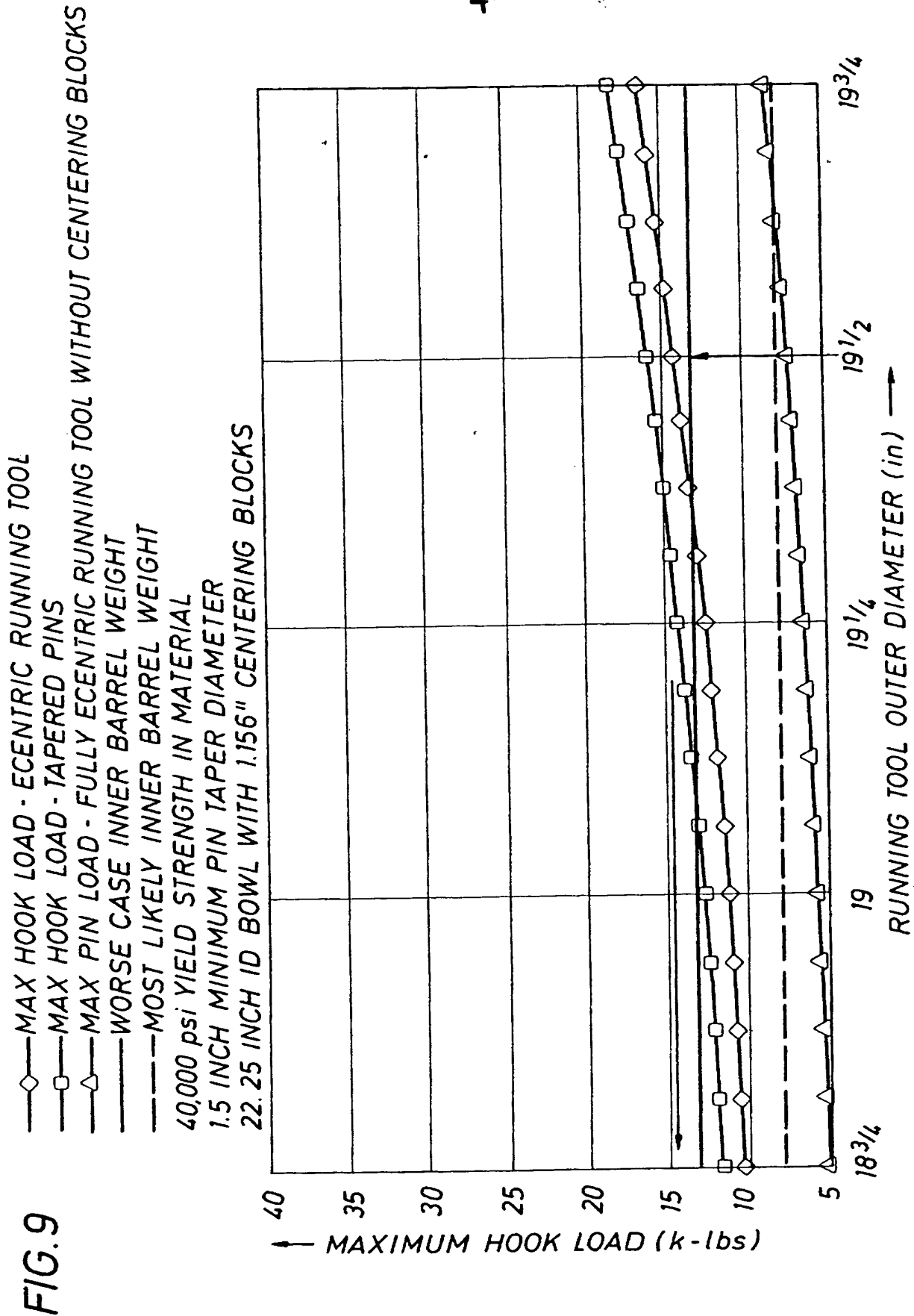
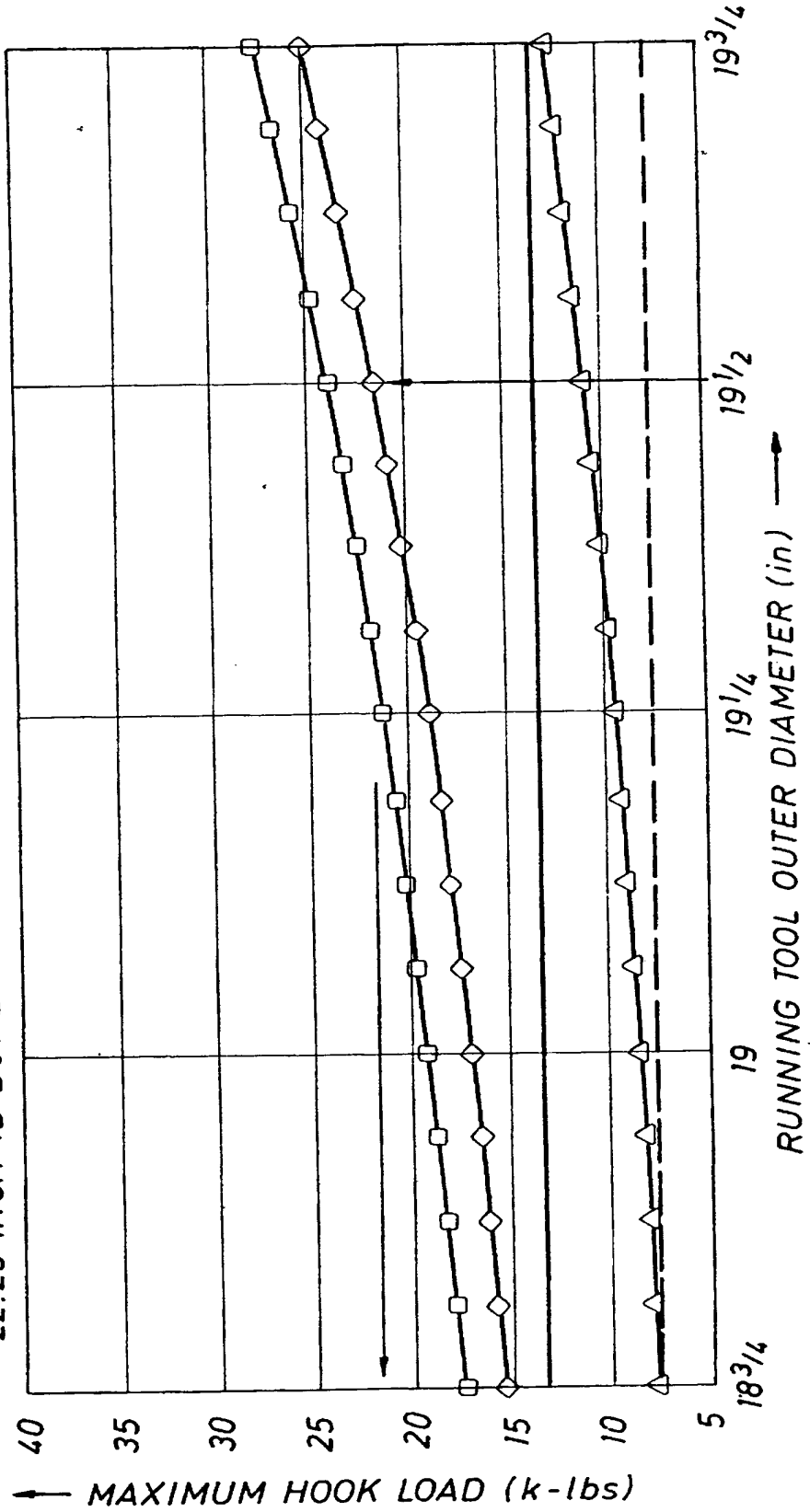


FIG. 10

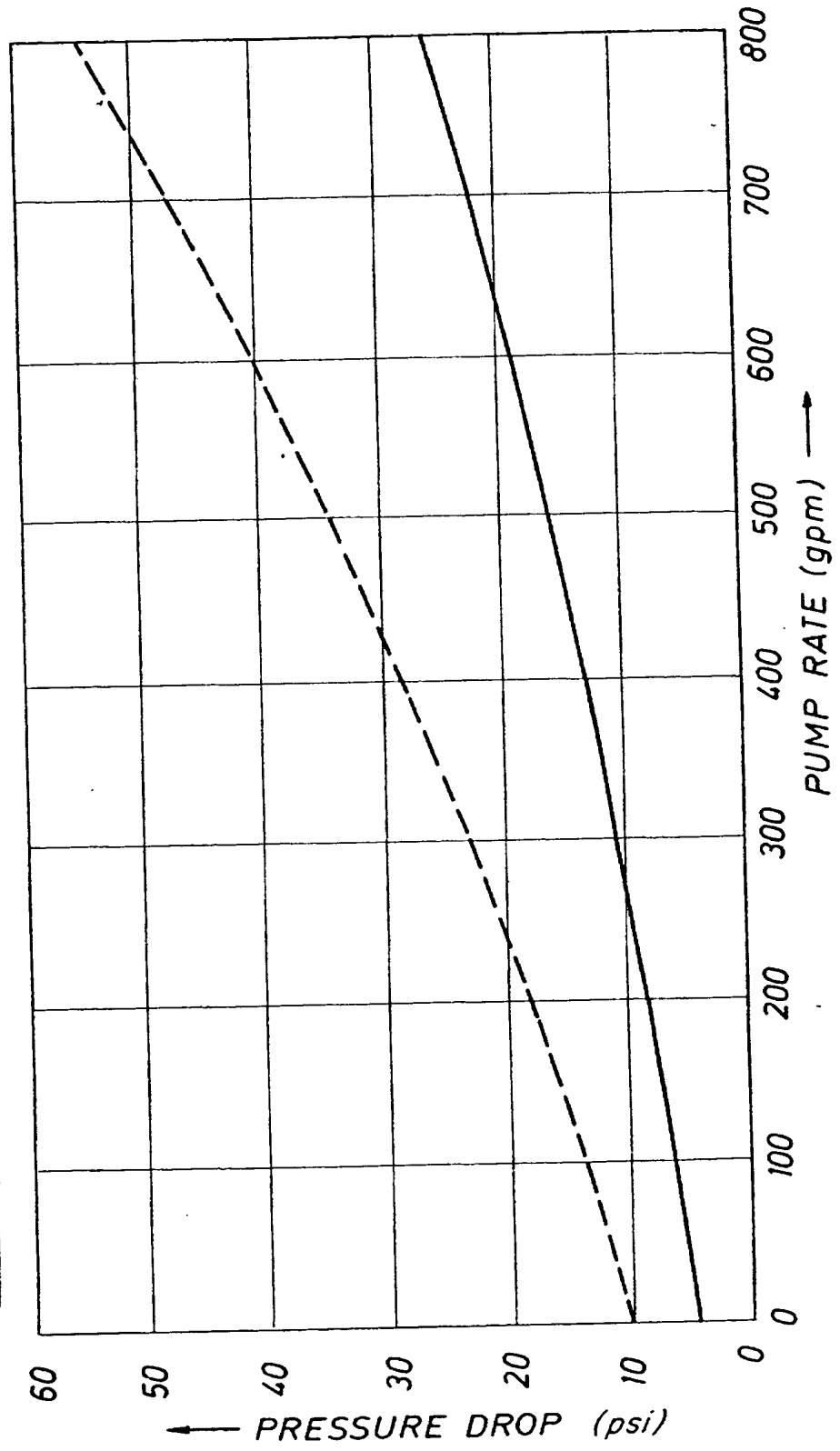
—◇— MAX HOOK LOAD - ECENTRIC RUNNING TOOL
—□— MAX HOOK LOAD - TAPERED PINS
—△— MAX PIN LOAD - FULLY ECENTRIC RUNNING TOOL WITHOUT CENTERING BLOCKS
— — — WORSE CASE INNER BARREL WEIGHT
— — — MOST LIKELY INNER BARREL WEIGHT
60,000 psi YIELD STRENGTH IN MATERIAL
1.5 INCH MINIMUM PIN TAPER DIAMETER
22.25 INCH ID BOWL WITH 1.156" CENTERING BLOCKS



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FIG. 11

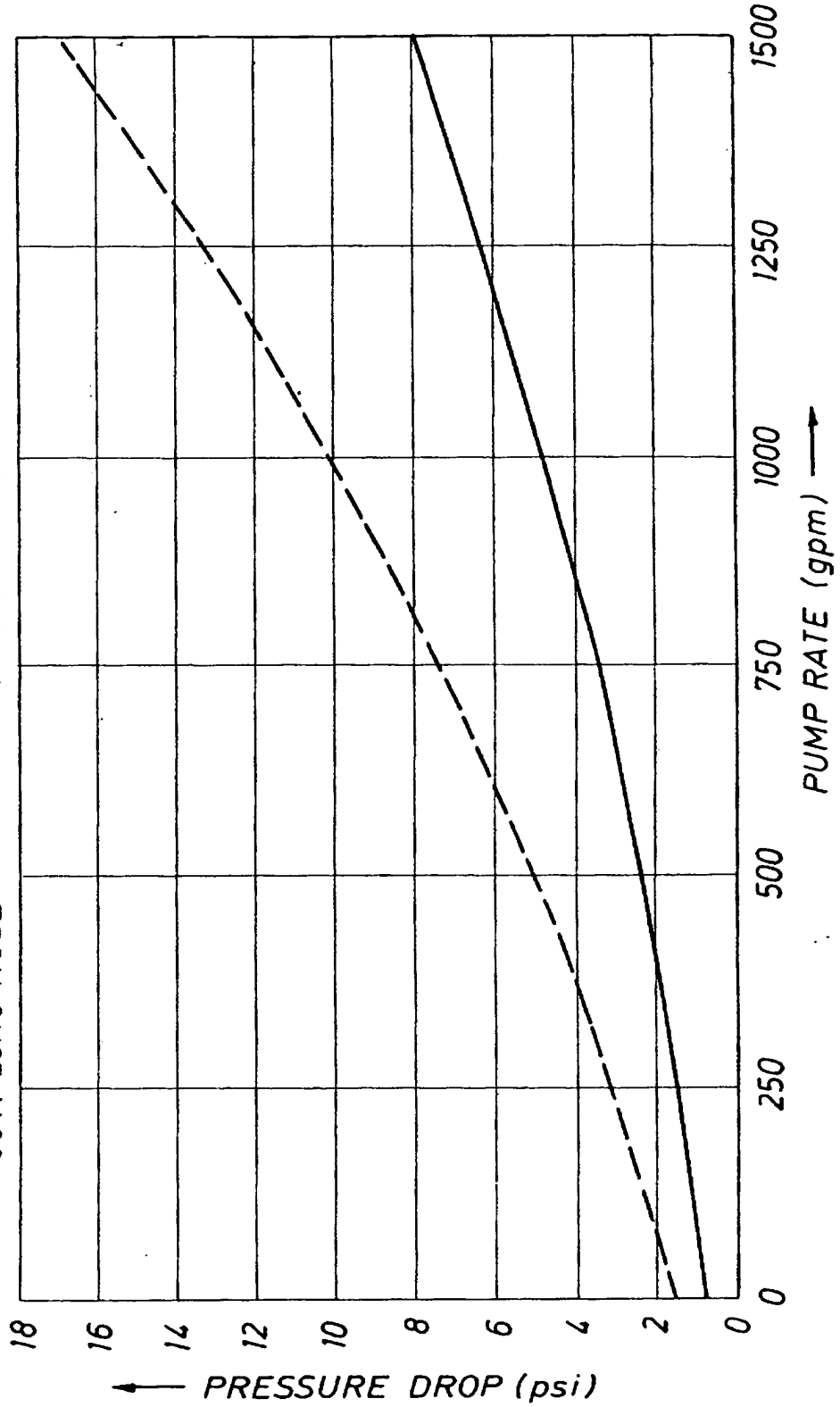
16 ppq MUD, 30cp vis
10 lb / 100 ft² YIELD
500 gpm BOOSTER PUMP RATE
291 fpm MAX AV IN 9.6 INCH HOLE
85 fpm MAX AV IN 20 INCH RISER
(800 gpm PUMP RATE + 500 gpm BOOSTER PUMP RATE THROUGH HOSE)
—— 30ft LONG HOSE --- 64ft LONG HOSE



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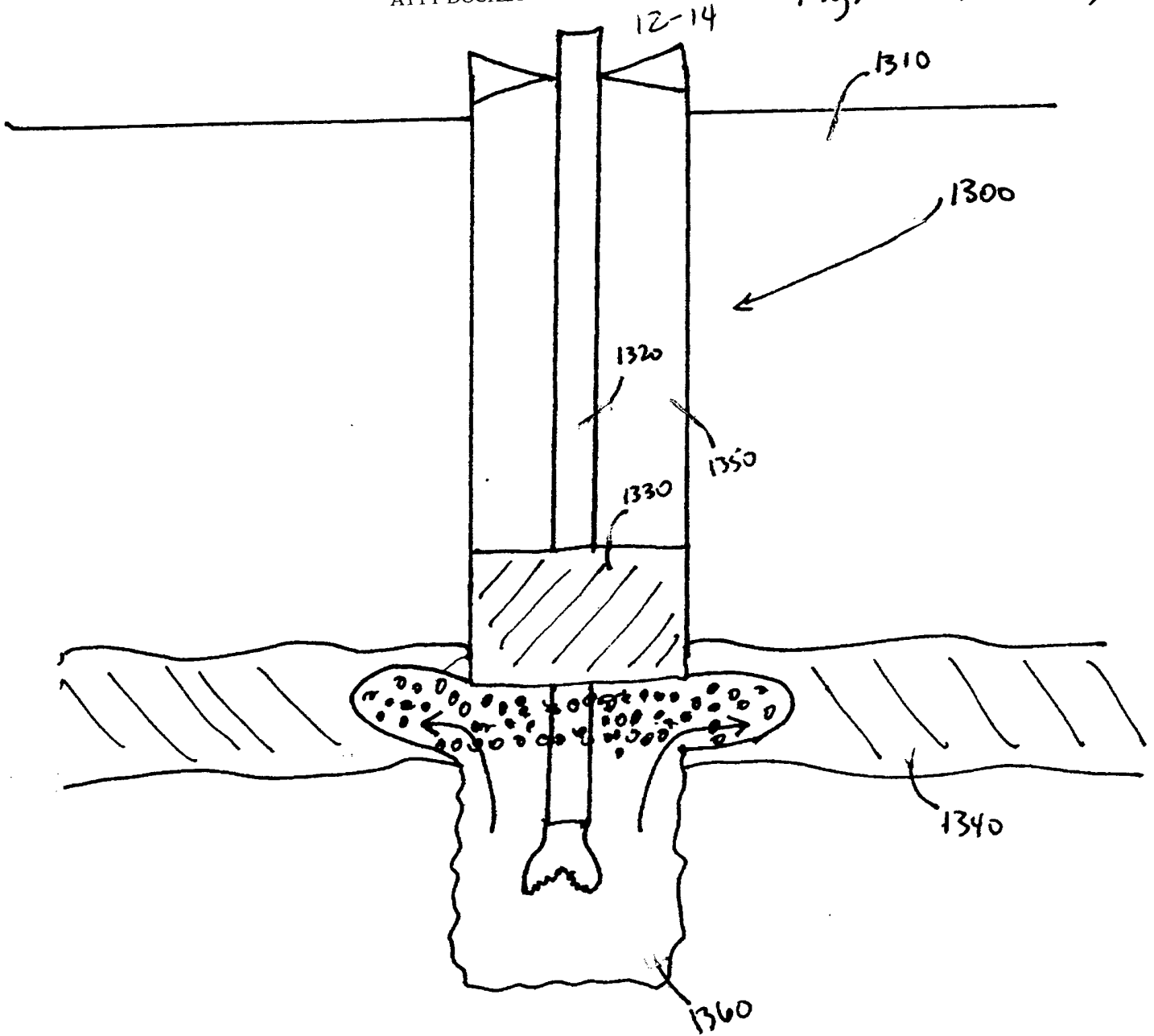
FIG. 12

16 ppg MUD, 30 cp vis
10 lb/100 ft² YIELD
500 gpm BOOSTER PUMP RATE
125 fpm MAX AV IN 18 INCH HOLE
131 fpm MAX AV IN 20 INCH RISER
(1500 gpm PUMP RATE + 500 gpm BOOSTER PUMP RATE THROUGH HOSE)
—— 30 ft LONG HOSE - - - - 64 ft LONG HOSE



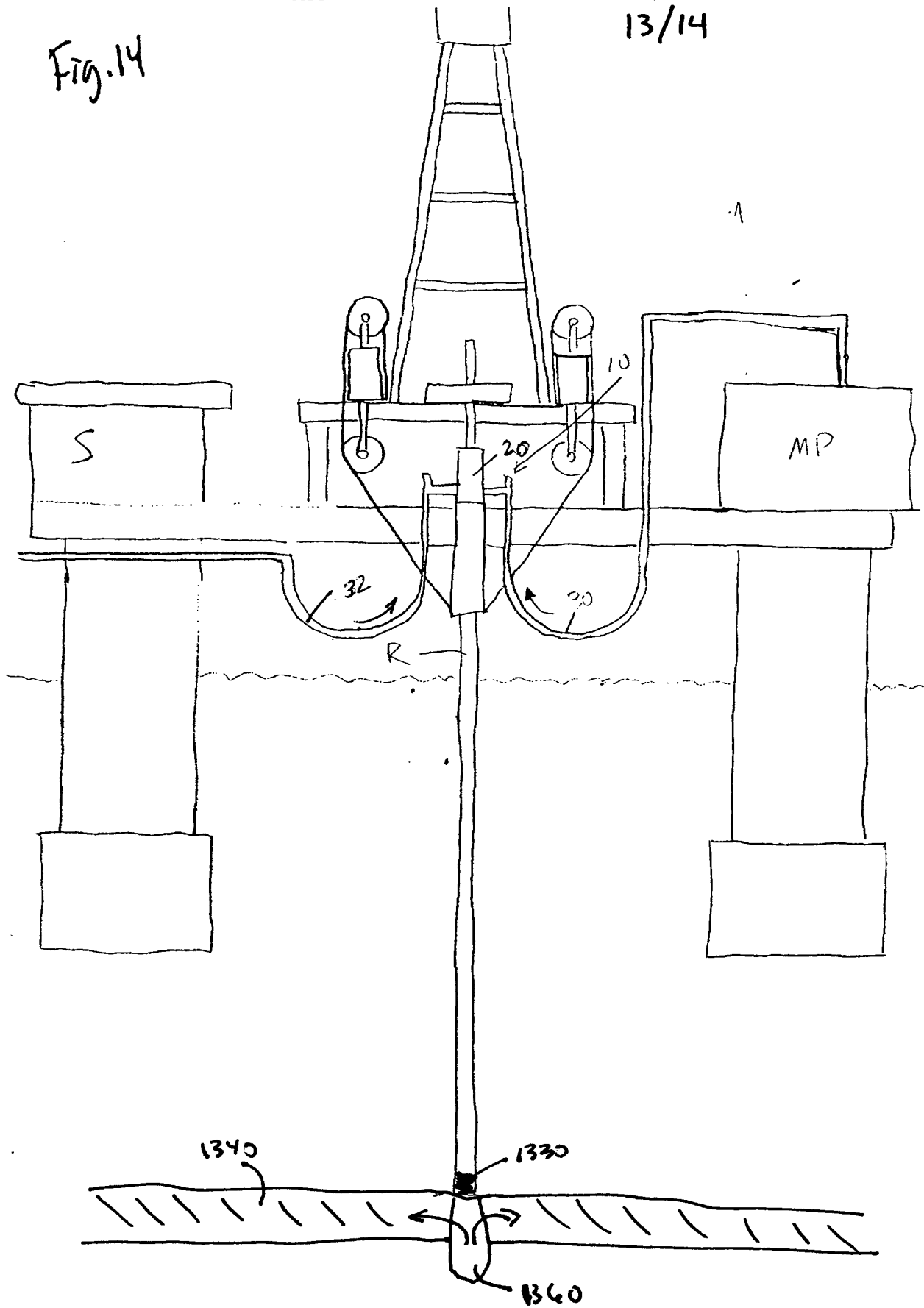
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Fig. 13 (Prior Art)



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Fig. 14



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Fig. 15 14/14

